

What are Logic Models?

Logic Models are a systematic, clear and concise way of visually presenting the process or mechanism through which specific interventions can affect behavior change and achieve a health goal (Kirby, 2004.) Logic models display the relationships among the resources you have to operate your program, the activities you plan, and the changes or results you hope to achieve. They have been used for more than 20 years by program managers and evaluators to describe the effectiveness of their programs.

Logic models illustrate a sequence of cause-and-effect relationships—a systems approach to communicate the path toward a desired result (Millar, 2001.)

Purpose of Logic Models

A logic model, though many parts, examines and creates link among program resources, activities, outputs, audiences, and the short to long term outcomes related to your community's specific need. Logic models are the blueprint to helping a community thoroughly plan, design, and implement both small and large scale initiatives while laying the path toward a desired goal or outcome.

The purpose of a logic model is to help your agency visualize and understand how investing time and resources can contribute to achieving your intended programmatic goals and outcomes. Specifically, logic models can:

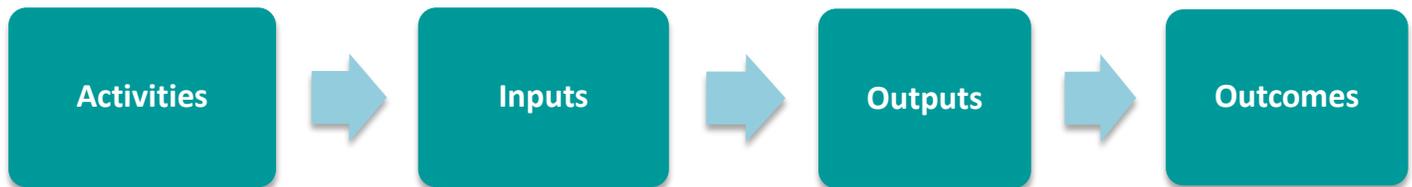
- Link key intervention components and activities to key determinants, also known as factors, which affect the health of individuals and communities (e.g. social, economic, and environmental factors.)
- Encourage program designers and program implementers to focus on the most important program elements, determinants, and behaviors.
- Encourage evidence-based programming.
- Help determine what additional information needs to be gathered or what research needs to be conducted in order to design or improve a program.
- Provide guidance to evaluators to determine which specific activities and outcomes to measure.
- Help build cooperation between program designers and researchers.
- Provide the foundation for understanding what works and why it works.
- Help programs serve people more effectively and efficiently and improve the use of limited resources in order to achieve health goals.
- Help strengthen your case for program investment.

- Better position programs for success (Kirby, 2004.)

Basic Components

Logic Models are made up of various parts and can range from very simple to complex. The logic model has many important parts and will depend on the program's focus, purpose, type of intervention, audience, and the number of goals and outcomes that are hoped to be achieved. Logic models examine the links between resources, activities, outputs, audiences, and short-, intermediate-, and long-term outcomes related to a specific problem or situation. It will be helpful to think of the basic components of logic models as a sequence of cause-and-effect relationships to get to the desired outcome.

In their simplest form, logic models include:



- **Activities** are the processes, techniques, tools, events technology and action of the planned program
 - **Examples:** promotional materials, curricula, education, relationships, capacity and health screening.
- **Inputs/Factors** are what we invest, the resources and/or barriers, which potentially enable or limit program effectiveness.
 - **Examples:** funding, partners, time, facilities, equipment, and supplies.
 - **Examples:** attitudes, lack of resources, policies, laws, and geography.
- **Outputs** are tangible results, the direct result of activities and products
 - **Examples:** number of classes taught, meetings held, materials produced and distribute.
- **Outcomes** are the impact on the people or community that the program intended to benefit. This can include accomplishments of the program, specific changes in attitudes, behavior, knowledge, skills, status or level of functioning expressed at an individual level. There are three types of outcomes that include:
 - **Short Term** (learning: awareness, knowledge, skills, motivations)

- **Intermediate** (action: behavior, practice, decisions, policies)
- **Long Term** (consequences: social, economic, environmental etc.)

Components and Examples

Component ¹	Meaning/ Definition	Examples
Situation	Description of challenge, problem or opportunity.	<ul style="list-style-type: none"> • High pregnancy rates among 15-19 year old teens on Reservation A. • County Y recently funded to establish a HIV prevention program in State Y.
Inputs	What you invest in the program such as resources, contributions, and investments.	<ul style="list-style-type: none"> • Sufficient time and commitment from 2 knowledgeable adolescent health experts to manage the program. • Support from Organization Y's business office to maintain effective accountability.
Outputs	Products, services and events that are intended to lead to the program's outcomes.	<ul style="list-style-type: none"> • Curriculum on HIV prevention. • At risk youth receive effective comprehensive sex education and youth development programs that are appropriate to their needs.
Activities	What you do with your inputs, to services you provide to fulfill your mission. This is a sub-set of outputs.	<ul style="list-style-type: none"> • Develop youth-centric policies and procedures. • Identify appropriate evidence-based programs that reduce HIV and teen pregnancy and/or sexual risk behavior.
Participation	Individuals, groups or organizations involved in the activities. This is a sub-set of outputs.	<ul style="list-style-type: none"> • High-school students, parents, educators and counselors involved in an outreach initiative to reduce HIV. • Tribal council members who serve on an advisory committee to formulate culturally appropriate policies for youth in an STI prevention program.
Outcomes	Planned results or changes for	<ul style="list-style-type: none"> • Increased numbers of youth receiving

¹ Resource: Adapted from Logic Models. USDA National Institute of Food and Agriculture.
http://www.csrees.usda.gov/about/strat_plan_logic_models.html

Logic Model

	individuals, groups, communities, organizations, or systems.	<p>clinical services, use contraception and condoms if sexually active and get tested for STIs.</p> <ul style="list-style-type: none"> All middle and high schools in State A implement effective programs to reduce HIV and teen pregnancy.
Knowledge	Occurs when there is a change in knowledge or the participants actually learn. This is a subset of outcomes and usually denotes short term outcomes.	<ul style="list-style-type: none"> Students learn how to apply condoms correctly. Increased numbers of youth know where to obtain contraceptives.
Actions	Occur when there is a change in behavior or the participants act upon what they've learned. This is a subset of outcomes and usually denotes intermediate term outcomes.	<ul style="list-style-type: none"> Thirty percent increase in program participants, 15-19 years of age, who have used condoms consistently over the last 3 months. Increased parent-child communication on sensitive topics such as sex, drugs and violence.
Conditions	Occur when a societal condition is improved due to a participant's action taken in the previous column. This is a subset of outcomes and usually denotes long term outcomes.	<ul style="list-style-type: none"> Decreased HIV rates among 15-19 year old teens on Reservation A. State Y's HIV prevention program offers after-school comprehensive sex education in 10 counties.
Assumptions	The verbal statement of the program theory, research, previous evaluations, or other science-based evidence, making the claim that this program could plausibly be expected to produce the expected results.	<ul style="list-style-type: none"> Comprehensive sex education decreases rates of unplanned pregnancy and STIs in teens. Abstinence from sex is the only sure way to prevent unplanned pregnancies and contracting STIs.
External Factors	A brief discussion of what variables have an effect on the program, or project, but which cannot be changed by managers of the portfolio, program, or project.	<ul style="list-style-type: none"> Continued funding for a program may depend on who yields political power. Deep-seated cultural beliefs may affect recruitment and retention in a teen pregnancy prevention program.

Steps to Develop a Logic Model

Along with the basic components of a logic model, the steps involved in creating a logic model will help in strengthening your program. There are many forms of logic models and there is not a one-size-fit-all remedy. Some logic models may work backwards by starting with the outcomes, and others start from the input/activities and work forward. Whatever the method you choose, remember that there are various types of logic models. Your organization should try several. Choose the model that fits your program best, provides the information you need, and is in the format that is most helpful. Like anything else, it takes practice to use logic models as effective program tools. Through trial and error, we learn to find what works best for each program (Kellogg, 2004.) To create your logic model, there are a few important steps to help you reach your goal.

Step 1: Create a problem statement

In order to create a problem statement, it is important to understand the problem or issue in your community that needs to be addressed. This needs to be clearly outlined, either through research, local data review, formal or informal community assessment, etc. and will help you become familiar with your community's specific problem or issue.

- **Example:**
 - High STI rates among 14-18 year olds in the community.

Step 2: Form your Goal Statement

During this step, you will develop a goal statement, which is a broad statement of what you intend to accomplish within your community. The goal statement will help guide the program and provide direction for your program's activities and outcomes. Goal statements should be specific to your community, should focus on an expected program outcome, identify a priority population to be served, and should have clear outcomes that are related to the problem.

- **Example:**
 - To reduce the high STI rates among 14-18 years old in X community.
 - To engage youth and the adults in the community in 5 collaborative workshops for 3 months.
 - To reduce cyber bullying behavior at 10 schools in X school district.

Step 3: Creating Process Objectives/ Activities

Creating successful process objectives, also known as the activities, involves creating a step by step plan around what needs to occur and what activities program staff need to perform in order to fulfill the program goals. Process objectives help provide the groundwork necessary to achieve your program goal.

Process Objectives need to be written as **S.M.A.R.T.** Objectives:

Measurable.

Concrete numbers toward reaching the goal. (e.g. how many, how much?)

Achievable.

Ensuring that the objectives are possible and attainable for you to accomplish

Relevant .

Choosing goals and objectives that are relevant to your scope of work and organization

Timed.

A time by which outcomes will be achieved.

Specific.

Creating a clear, simple and direct goal

- **Examples:**
 - By the year 2015, the use of tobacco among 12-17 year olds in X County will be reduced by 40%.
 - By February 2013, the HIV/STI programming will have reached 500 youth in 5 schools in X County's school district.
 - Of the 500 youth receiving the HIV/STI programming, 60% will correctly name the benefits of using condoms by the end of the school year.

Step 4: Creating the Program Outcomes

Outcomes are the goals that a program hopes to accomplish as a result of completing its activities (process objectives). Outcome objectives define the impact or the intended results of the program and can be either short term, intermediate, or long term.

Short term outcomes: Examine the immediate outcomes of the program and often focus on knowledge, awareness, attitudes, and skills.

- **Examples:**

- Increase in oral health advocacy due to parent/teacher collaborative efforts.
- Increase in evidence-based direction for resources disseminated to health care providers and patients.
- Increased public exposure to information regarding HIV and sexually transmitted infections.

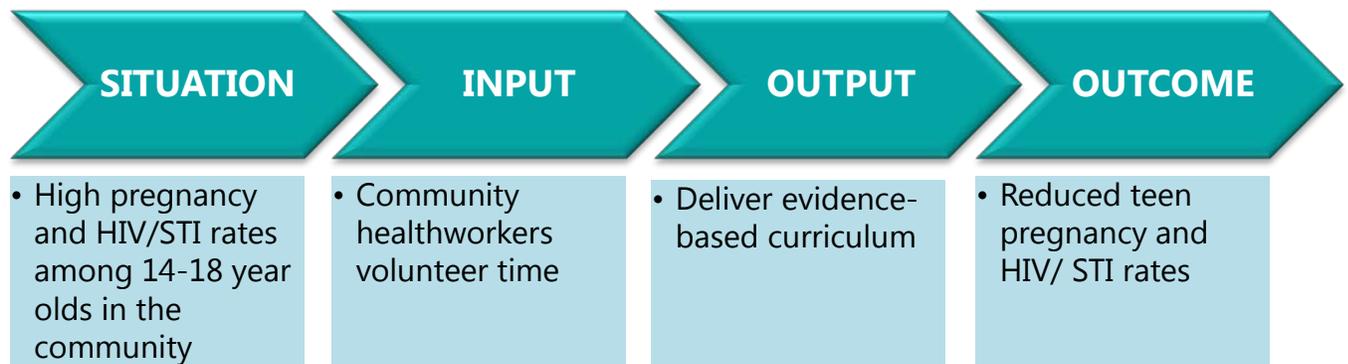
Intermediate outcomes: Examine behavior change, change in practices, decisions and changes in policies.

- **Examples:**
 - Changes in practice law due to program implementation in schools.
 - Increased condom use to prevent HIV.

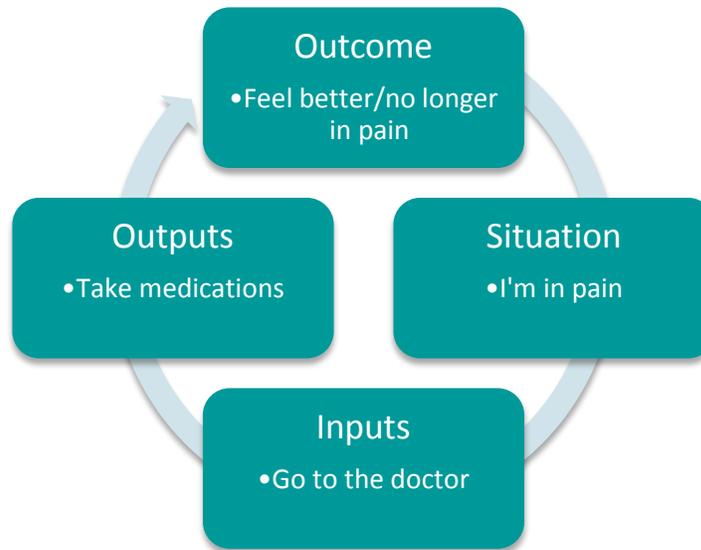
Long term outcomes often take time to achieve. Long term outcomes are the ultimate goals of the program.

- **Examples:**
 - Decrease in prevalence of HIV infections.
 - Decreased number of teen births.
 - Decrease of unprotected risky sexual behaviors.

Example of a simple logic model:



Example of Circular Logic Model using an everyday example:



Additional Tips

Always start with analysis of the situation and identification of the long-term desired outcome or goal of your program.

Approach 1: Work backwards

- 1. Start at the end.** Identify your long-term desired outcomes? (Long Term Outcomes/ Conditions)
- 2. Move backwards.** What are the series of outcomes that will eventually lead to the final, long-term goals? (Actions or Intermediate Outcomes and Knowledge or Short-term Outcomes)
- 3. Move backwards.** Who must participate in order to achieve the outcomes? (Outputs)
- 4. Move backwards.** What activities must be provided/produced/completed so that the identified individuals (groups) will achieve the desired outcomes? (Outputs)
- 5. Move backwards:** What resources are needed to make sure the activities are accomplished? (Inputs)

Approach 2: Focus on activities

1. **Write down all activities** involved in (or planned for) the program – workshops, services, products, etc.
2. For each activity, **complete one of the following statements**, continue repeating and completing the statement until you reach a logical end point.

“We do _____, SO THAT _____ will occur.”

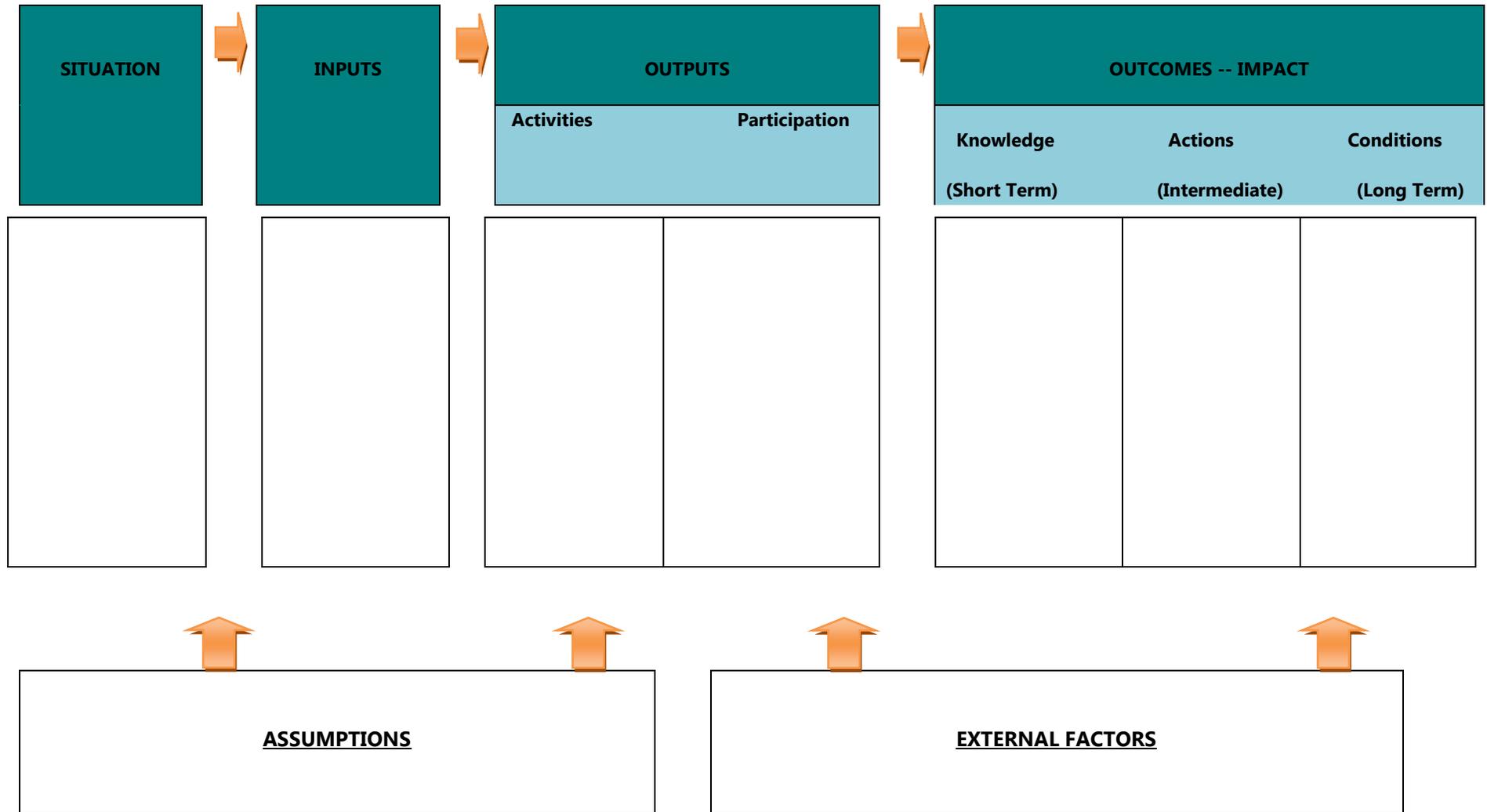
“IF we do _____, THEN _____ will occur.”

3. You can also use the question “But, why?” For example: **But, why** do we offer condom demonstrations? Answer: so that teens will learn how to apply condoms correctly. **But, why?** Answer: so that teens will apply condoms correctly when they have sex. **But why?** So that teens can prevent unplanned pregnancies and STIs.
4. **Continue until a chain of connections is created** that links program activities to desired outcomes.
5. **List the resources** needed to ensure the chain of connections is achieved.

Logic Model Templates

Logic models look as different as the programs they represent and the context in which they exist. Logic models look different depending on the purpose, type and complexity of program. When deciding on a format; settle on one that best fits your community and the end-user

Logic Model



Logic Model

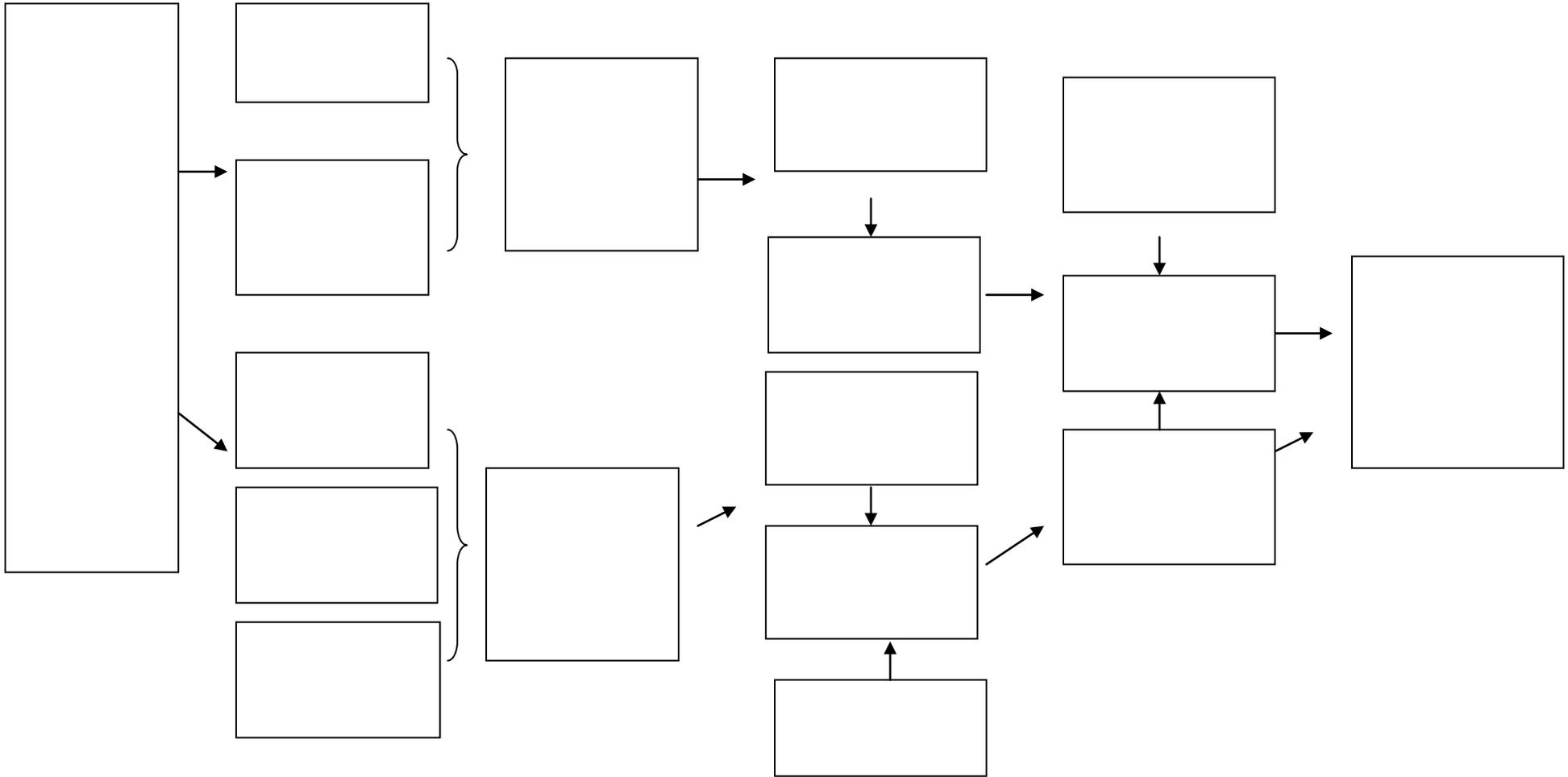
Inputs

Outputs

Activities *Participation*

Outcomes

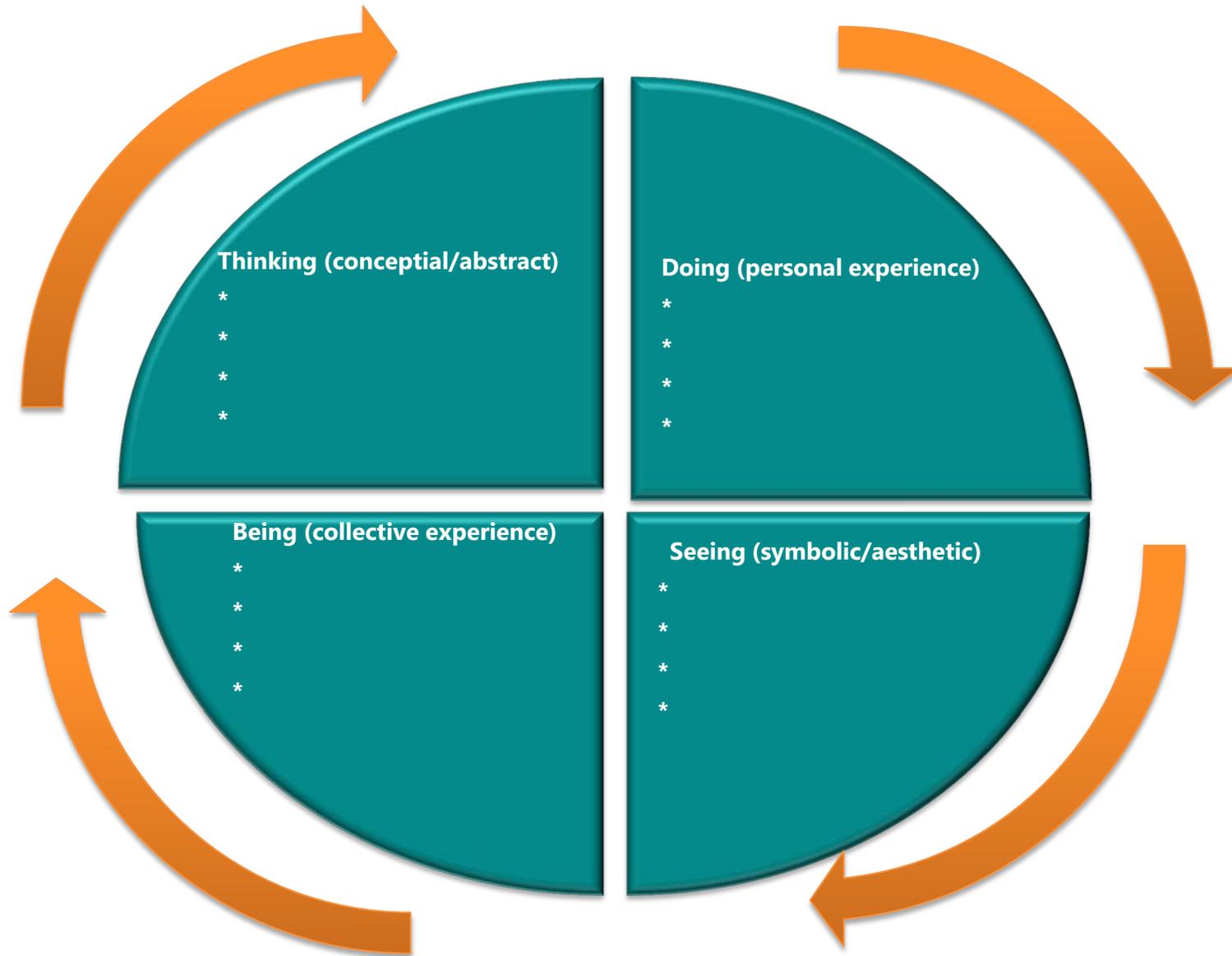
Short *Medium* *Long*



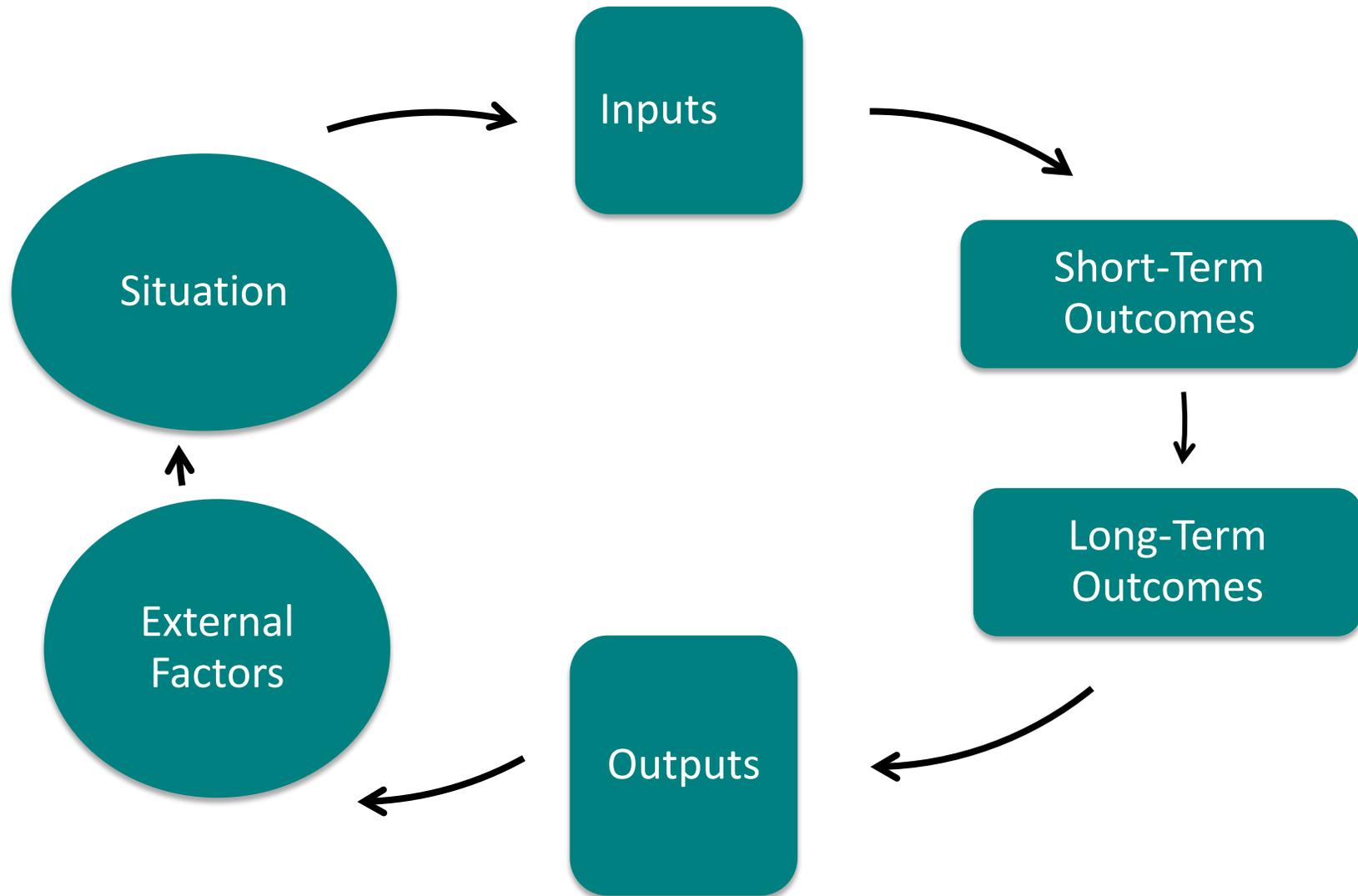
Assumptions

External Factors

Logic Model



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Logic Model Resources and References

BDI Logic Model Online Course: <http://www.etr.org/recapp/logicmodelcourse/index.htm>

BDI Logic Model Document (D. Kirby): <http://www.etr.org/recapp/documents/BDILOGICMODEL20030924.pdf>

California STD/HIV Prevention Training Center: Youth Social Marketing Tool Kit (Goals and Objectives):
http://www.stdhivtraining.org/YSMT_goals.html

Centers for Disease Control Division of Oral Health Workbook – Logic Models:
http://www.cdc.gov/OralHealth/state_programs/pdf/logic_models.pdf

Centers for Disease Control. Tutorials and Briefs: Index to Briefs and Tutorials:
<http://www.cdc.gov/HealthyYouth/evaluation/resources.htm>

Logic Model Tutorial: http://apps.nccd.cdc.gov/dashoet/logic_model/index.html

Writing Good Goals Tutorial: http://apps.nccd.cdc.gov/dashoet/writing_good_goals/menu.html

Evaluation Brief No.3A, 2008: <http://www.cdc.gov/healthyouth/evaluation/pdf/brief3a.pdf>

Kellogg Foundation Logic Model Development Guide: <http://www.wkkf.org/knowledge-center/resources/2010/Logic-Model-Development-Guide.aspx>

University of Wisconsin Extension, Logic Model Course and Resources: Logic Model Course: <http://www.uwex.edu/ces/lmcourse/>

Logic Model Training Guide: <http://www.uwex.edu/ces/pdande/evaluation/pdf/lmguidecomplete.pdf>

Logic Model Resources: <http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html>